

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MIKIO MOTTATE,
MASAAKI ORIKASA
and
KIKUO NISHI

Appeal No. 95-2721
Application No. 08/054,927¹

HEARD: May 5, 1998

Before CALVERT, PATE, and NASE, Administrative Patent Judges.
NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 through 16. Claim 17 has been allowed.

¹ Application for patent filed April 28, 1993.

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Application No. 08/054,927

We REVERSE.

BACKGROUND

The appellants' invention relates to a titanium orthodontic appliance. An understanding of the invention can be derived from a reading of exemplary claim 1, which appears in the appendix to the appellants' brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Takahashi et al. 1991 (Takahashi)	5,068,003	Nov. 26,
Hilgers et al. 21, 1992 (Hilgers)	5,131,843	July (filed May 6,
Sachdeva et al. 1993 (Sachdeva)	5,232,361	Aug. 3, (filed Apr. 6,
1992)		

Claims 1 and 2 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Hilgers.

Claims 1 through 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Sachdeva in view of Takahashi.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the final rejection (Paper No. 6, mailed March 21, 1994) and the examiner's answer (Paper No. 13, mailed December 22, 1994) for the examiner's complete reasoning in support of the rejections, and to the appellants' brief (Paper No. 11, filed September 30, 1994) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

The anticipation issue

The decision of the examiner to reject claims 1 and 2 under 35 U.S.C. § 102(e) is reversed.

To support a rejection of a claim under 35 U.S.C. § 102(b), it must be shown that each element of the claim is found, either expressly described or under principles of inherency, in a single prior art reference. See Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983), cert. denied, 465 U.S. 1026 (1984).

Independent claim 1 is drawn to an orthodontic appliance formed of a titanium alloy. The titanium alloy comprises a \$-stabilizing element including at least 12 wt% molybdenum to produce a \$-monophase that is stable at body temperature.

Hilgers discloses an orthodontic archwire made of a titanium molybdenum alloy. Hilgers teaches that they

have found that an orthodontic wire made out of a titanium molybdenum alloy is capable of providing the desired physical properties. U.S. Pat. No. 4,197,643 disclose some alloys of the general type suitable for the present invention. In order to maintain the appropriate ductility required for an archwire made in accordance with the present invention, the wire should be made of a material having a body centered cubic structure having a maximum of 30% alpha phase form.

Hilgers then discloses that they have found the following alloy composition to be suitable:

	<u>% By Weight</u>
Mo (Molybdenum)	11.5% \pm 2%
Zr (Zirconium)	6.0% \pm 2%
Sn (Tin)	4.5% \pm 2%
Ti (Titanium)	balance

The appellants argue (brief, pp. 4-5) that Hilgers does not either expressly or under principles of inherency teach a titanium alloy including "at least 12 wt% molybdenum to produce a β -monophase that is stable at body temperature." We agree. While Hilgers does teach a titanium alloy including "at least 12 wt% molybdenum," Hilgers does not, either expressly or inherently, teach to produce that alloy as a β -monophase that is stable at body temperature. Hilgers is silent as to whether his titanium alloy is produced as a β -monophase that is stable at body temperature or not. Since a titanium alloy can be produced as other than a β -monophase that is stable at body temperature (e.g., mixed α and β phases, a β -monophase that is not stable at body temperature, an α -monophase, etc.), Hilgers does not inherently disclose a β -monophase that is stable at body temperature.

Since all the limitations of independent claim 1 are not found in Hilgers, the decision of the examiner to reject independent claim 1, as well as dependent claim 2, under 35 U.S.C. § 102(e) is reversed.

The obviousness issue

The decision of the examiner to reject claims 1 through 16 under 35 U.S.C. § 103 is reversed.

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. See In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). Furthermore, the conclusion that the claimed subject matter is obvious must be supported by evidence, as shown by some objective teaching in the prior art or by knowledge generally available to one of ordinary skill in the art that would have led that individual to combine the relevant teachings of the references to arrive at the claimed invention. See In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Rejections based

on § 103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis for the rejection. See In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968).

With this as background, we analyze the prior art applied by the examiner in this rejection of the claims on appeal.

Sachdeva discloses an orthodontic bracket. Sachdeva teaches (column 4, lines 50-52) that the material for the orthodontic bracket is not limited to commercially pure titanium, but may comprise any titanium based alloy.

Takahashi discloses (column 2, lines 16-17) that β -type titanium alloys such as Ti-15Mo-5Zr and Ti-15Mo-5Zr-3Al have been used as an erosion-shielding material for steam turbine blades made of a Ti-6Al-4V alloy.

Independent claim 1 is drawn to as an orthodontic appliance formed of a titanium alloy. Independent claim 7 is drawn to as an orthodontic appliance comprising a bracket means formed of a titanium alloy. Independent claim 14 is drawn to as an orthodontic bracket formed of a titanium alloy. The titanium alloy recited in claims 1, 7 and 14 comprises a \$-stabilizing element including at least 12 wt% molybdenum to produce a \$-monophase that is stable at body temperature.

The combined teachings of the applied prior art (i.e., Sachdeva and Takahashi) do not teach or suggest as an orthodontic appliance/bracket made from a titanium alloy including "at least 12 wt% molybdenum to produce a \$-monophase that is stable at body temperature." While the combined teachings of the applied prior art may suggest a titanium alloy including "at least 12 wt% molybdenum," the combined teachings of the applied prior art do not teach or suggest to produce that alloy as a \$-monophase that is stable at body temperature.

Since the subject matter of independent claims 1, 7 and 14, as well as dependent claims 2 through 6, 8 through 13, 15 and 16, are not taught or suggested by the applied prior art, the decision of the examiner to reject claims 1 through 16 under 35 U.S.C. § 103 is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1 and 2 under 35 U.S.C. § 102(e) is reversed and the decision of the examiner to reject claims 1 through 16 under 35 U.S.C. § 103 is reversed.

REVERSED

IAN A. CALVERT)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
WILLIAM F. PATE, III)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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JEFFREY V. NASE)	
Administrative Patent Judge)	

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APPLICATION NO. 08/054,927

APJ NASE

APJ PATE

APJ CALVERT

DECISION: **REVERSED**

Prepared By: Delores A. Lowe

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FINAL TYPED:

Heard: May 5, 1998

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